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| **Subject / Course:** Mathematics | **TC Name:** Yana Ma | |
| **Grade Level:** 8 | **Date:** Oct 12, 2010 | |
| **Topic:** Data Management –collecting data | **Time of Class:** 40 minutes | |
| **AT Name:** Mary Miller | **Room # / Location:** | |
| **1. Curriculum Expectation(s) and Goal(s) for the Lesson** | |  |
| 1. **Expectations**:  |  | | --- | | *Collection and Organization of Data*   1. Collect data by conducting a survey or an experiment to do with themselves, their environment, issues in their school or community, or content from another subject, and record observations or measurements; 2. Collect and organize categorical, discrete, or continuous primary data and secondary data, and display the data in charts, tables, and graphs that have appropriate titles, labels, and scales that suit the range and distribution of the data, using a variety of tools;   *Data Relationships*   1. Read, interpret, and draw conclusions from primary data and from secondary data presented in charts, tables, and graphs; 2. Make inferences and convincing arguments that are based on the analysis of charts, tables, and graphs; | | | |
| 1. **Goal(s) for the lesson:** *(In your own words, what do you want the students to have learned by the end of the lesson? How will you know they have learned?)*  |  | | --- | | 1. Students will be able to understand how to use Smart board 2. Students will be able to understand how to conduct a survey and record and organize data in a chart format 3. Students will be able to use the graphic organizer “Frayer’s Model” to define: primary data, secondary data and frequency 4. Students will be able to understand how to use Excel to record collection of data | | | |
| **2. Preassessment and Accommodations/Modifications** | | |
| |  |  | | --- | --- | | **Preassessment:** | **Accommodation/Modification:** | | **Academic Needs:** *(what will you do with the students who finish early or who cannot finish or understand the lesson***?)**  **Behavioural/Social/Emotional Needs:** *(Do you have students who are easily distracted, have short attention span, don’t participate or talk out constantly?)*  **Physical Needs:** *(do you have students with allergies, difficulty seeing or hearing, or with mobility issues?)*  **Diversity Needs:** *(do you have any ESL students? Are there cultural or language issues?)* | The intro activity acts as a review exercise  -If the class seems to have a lot of trouble with the Minds-On activity, change the lesson into a review lesson  Give more questions for the students who finish early  Give fewer questions to students who have difficulty completing the work  -Allow students to work in pairs  -Be selective in the questions assigned to students who have difficulty  Ensure students who are easily distracted are asked to participate in activities  Stress the importance of cooperation-this is not a competition | | | |

**3. Learning Environment** (*describe the setup for your classroom. Will they work alone or in groups? Will it be the same for the whole lesson? If students are moving about how will you make sure it goes smoothly? Y****ou may wish to include a map/layout of the classroom on a separate sheet and reference it with modifications if lesson changes.***

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| The Smart Board will be next to the teacher.  Students will be required to clear their desk at the beginning of the lesson.  During group activities and seat work the teacher will circulate throughout the classroom.  All handouts and required materials will be ready at the teacher’s desk(to the right of the teacher) |

**4. The Overview (Agenda) for your lesson:** *(In this area, write the agenda (outline) for your lesson. This is what you will write on the board for your students)*

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| 1. Minds on  2. Group discussion  3. Data collection  5. Class discussion  6. Consolidation-using the Frayer Model |

**5. Resources and Materials for your class** *(what must you bring to the class: markers, scissors; graph paper, extra pencils, beakers, etc. How many will you need? If they will be using a textbook, list it here. If you used websites or other resources to prepare this lesson, list those here)*

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| 1. Smart board 2. Clicker set 3. Teacher’s laptop 4. 35 copies of worksheet 1- “Tally Chart” (copy attached) 5. 6 copies of worksheet 2 – “Mean and ratio” (copy attached) 6. Frayer’s Model on 5 chart paper 7. Pencils (students have their own pencils) |

**6. Content, Teaching Strategies, for Lesson (***In this portion of the lesson plan, you will organize the content for your lesson, and teaching strategies for your lesson. Include: an* ***Introduction*** *or Minds-on,* ***Instruction****,* ***Application*** *and* ***Consolidation.*** *Include approximate times for each portion and enough detail that another teacher could teach your lesson)*

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| ***Time*** | ***Teaching or***  ***Assessment Strategy*** | ***Detailed Description*** |
| *7 min.* | *Introduction*  *Using “Clickers” to conduct a survey*  *Organizing survey results into a graph*  *Using data to make inferences or draw conclusions* | 1. **(before class) Preparation**  * Before the start of the lesson, the teacher will connect the clicker receiver and run the software on the laptop with the presentation ready to display * Before the start of the lesson, the teacher will connect Smart Board, projector, laptop and run the software on the laptop with the presentation ready to display  1. **Transition (1 minute)**  * The teacher will get the class attention ( if you can hear me, clap one..., 1,2,3, all eyes on me) * The teacher will ask the students to clear their desks in 40 seconds( use Smart Board to show the time) * Students in the first and third rows will be required to turn their desks around to form 5 groups of 6(some 7) * The teacher circulates and helps students if needed * Each student will be provided with one remote control from the clicker set (rules for using clickers were established previously) * The teacher will write the agenda on the Smart Board but without writing the topic  1. **Minds On (6 minutes)**  * The teacher will get class attention(can I have your attention please) * This activity will consist of a presentation including four questions. Three questions are about the students’ preferences in sports, music and video games. The last question is asking students to guess the topic * The teacher will display each question on the Smart Board with five possible answers * For each question, the students will be required to press a key that corresponds to their choice * The teacher will hold the receiver to be visible to all students and remind them to aim their remotes towards the receiver * After all the answers are received, the teacher will display the result in graph form using clicker software * After displaying the results of each question, the teacher will ask students(what do you think is the most/least popular kind of music/sport/video games in this class) * After displaying the result of the last question, the teacher will inform the students that the topic is ”collecting data” and she will write in on the board |
| *12 min* | *Instruction*  *Direct Instruction*  *Cooperative learning*  *Conducting a survey*  *Collecting and recording data in a chart* | 1. Observation( 10 minute)  * The teacher will collect clickers back from students * The teacher will explain tally chart, mean and ratio * Tally Chart: A method of counting frequencies, according to some classification, in a set of data. * Mean: the mean of a set of numbers is found by dividing the sum of the numbers by the number of numbers in the set * Ratio: a comparison of quantities with the same units. A ratio can be expressed in ratio form or in fraction form; for example, 3:4 or 3/4 * The teacher will demonstrate how to use a tally chart to record the result * The teacher will ask students what’s your favourite pet? * The teacher will demonstrate how to record the result in a tally chart * The teacher will demonstrate how to calculate mean of the result * Mean= Sum of the numbers   Number of numbers   * The teacher will demonstrate how to calculate ratio of means * Ratio= Mean1   Mean2   * The teacher will explain the next activity * The teacher ask students to turn Nelson Mathematics 8 textbook to page 90 * The teacher will explain the activity: to gather cubes using two different methods * The teacher will demonstrate how to use the tally chart and how to calculate mean and ratio  1. Transition( 2 minute)  * The teacher will ask each group to appoint a reporter to share the group’s findings with the rest of the class * The teacher will ask the student who has the shortest hair in each group come forward to get materials for the group * The teacher will ask the student whose birthday is coming the soonest come forward to get tally chart for each member in the group |
| *15 min* | *Application*  *(Assessment)*  *Pairs-Check*  *(Assessment)*  *Cooperative learning* | 1. Group Discussion(10 minutes)  * The teacher will ask students to do the experiment in their groups with hand up and hand down for three times and record the result in a tally chart * The teacher will ask students to calculate the two means and ratio of the two means to one decimal place on the group chart  1. Transition (1 minute)  * The teacher will get the class attention (counting down 5,4,3,2,1)  1. Class Discussion(4 minutes)  * The teacher will explain the data that they obtained is called primary data, and the data that they get from somewhere else is called secondary data * The teacher will ask groups to share data * The teacher will use the group data to create a graph that compares the number of cubes removed using both methods * The teacher will ask students which method allows you to remove more cubes * The class draw conclusions from the experiment * The teacher reinforce the terms: tally chart, primary data, secondary data, mean, ratio |
| *6 min* | *Consolidation*  *Using a graphic organizer for assessment* | *Consolidation*   1. *Transition(1 minute)*  * The teacher will ask the person who is tallest in each group to come to the teacher’s desk and get a chart paper for the group * The teacher will give each a chart paper  1. *Frayer Models(5 minutes)*  * Each group will be assigned the terms(tally chart, primary data, secondary data, mean, ratio) * Each group will use the Frayer Model for their assigned topic to demonstrate their understanding of: definition, characteristic(how to get it), examples, non-examples * If the group finishes they will exchange models and perform a “pair check” with another group. Students will put their names on their model and hand in before leaving the class |

**7. Reflections: To be completed after you have taught the lesson.** (In this section, you will assess the effectiveness/ineffectiveness of your lesson and of your teaching.

**a) Effectiveness of your lesson***.*

*Include 2 or 3 lesson elements that were effective/ineffective. What went well, what could have gone better? How was the pacing of your lesson? Were your teaching strategies effective? Were all students engaged? Did the students accomplish your goal? Did your assessment strategies work?*

*What do you need to learn more about? What do you need to work on when planning your next lesson? Should you discuss something with your AT or your FA?*

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| **What was effective/ineffective about your lesson** | **How do you know?** | **What steps will you take to improve?** |
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**b) Effectiveness as a Teacher:**

*Include 2 or 3 comments about your effectiveness as a teacher or areas that could be improved. You could comment on your ability to manage the class, use higher order questions, your questioning technique and your ability to have the participation of all students. How effective was your oral and/or written communication? Were you able to adjust your lesson plan as required?*

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| **What was effective/ineffective about you as a teacher?** | **How do you know?** | **What steps will you take to improve?** |
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